Health Food Blogger: Friend or Foe?

Abstract

Objectives: The Scientific Advisory Committee on Nutrition (SACN) and the World Health Organisation (WHO) have recently updated nutritional guidelines for a reduced sugar intake. With the increased popularity of online health-food bloggers and 'refined-sugar free' recipes, this review looked to analyse recipes from popular online bloggers to validate the veracity of their 'sugar-free' and 'healthy' claims and assess their adherence to recently implemented nutritional guidelines.

Method: Four bloggers were randomly selected from the Amazon top 10 booklist and their online blogs were consulted for a selection of recipes which were then nutritionally analysed with relation to their sugar and fat content.

Results: 80% of the recipes analysed contained more fat than a Mars® bar and 70% contained more fat than a popular online cake recipe, whilst 25% of the recipes contained over half of the recommended daily sugar intake as advised by the SACN and the WHO. None of the bloggers analysed used evidence-based approaches for the advice on their blogs.

Conclusion: Bloggers offer an invaluable platform to disseminate dietary advice to the public, however the recipes in this analysis were not healthy alternatives. The challenge is for government and health organisations to utilise this platform to promote alternative healthy eating options that align to current national and international guidance.

Introduction

Social Media and Bloggers

Since the introduction of Web 2.0 in 1999[1], social media platforms have continually expanded and online blogs can be accessed on a wide variety of topics.[1] Social media platforms and blogs enable the public to immediately gain access to a large amount of information at a low cost to entry and are an effective method of circulating health promotion messages.[2] Furthermore, social media sites have been shown to assist health behaviour change and empower positive health changes[3], with 80% of US adults and 69% of UK adults seeking information regarding their health online.[4,5] However, bloggers often have no formal training and often disseminate confusing and incorrect healthcare messages.[5] Health-food bloggers rarely include any information regarding calorie count or fat and sugar content in their online recipes.[6] Health-food bloggers often claim that their recipes are 'guilt-free' and imply that their recipes are healthy, low-sugar alternatives.[6] With recent guidelines from the Scientific Advisory Committee on Nutrition (SACN) to reduce sugar intake to <5% of total calorie intake[7] and dietary guidelines from Public Health England[8] for monitoring our calories, fat and sugar intake, it is disappointing that health-food bloggers omit these details.

Sugars

Sugars were a subclassification of focus for this review**.** Sugars have been subdivided multiple times, as 'total sugars', 'free sugars' and 'intrinsic and extrinsic sugars' and 'non-milk extrinsic sugars'.[9] These differing terms can make the classification of sugars confusing, and this is compounded by attempts to differentiate between healthy and unhealthy sugars. Intrinsic sugars; defined as those "naturally incorporated into the cellular structure of a food"[7] are accompanied by nutrients[7] , have low cariogenic potential[7,10] and are found predominantly in fruit and vegetables.[7] Free sugars defined as "all monosaccharides and disaccharides added to food by the manufacturer, cook or consumer and sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates"[7] are found in processed food, have high cariogenic potential and lead to an increase in dietary intake.[7]

New Nutritive Sugar Sweeteners

A plethora of nutritive sugar sweeteners have flooded the retail market in recent years. Nutritive sugar sweeteners provide energy and hence calories.[11] Examples used in the recipes assessed include coconut sugar, agave syrup and maple syrup. These new nutritive sugar sweeteners are marketed as being healthy 'refined-sugar free' alternatives to table sugar[12], however often contain large quantities of sugar and can therefore contribute to obesity, type 2 diabetes, cardiovascular disease and dental caries.[7]

Fat

Fat is an important source of essential fatty acids and fat-soluble vitamins; however, an excess intake can lead to coronary heart disease, obesity and diabetes.[13]

The purpose of this study was to review the nutritional composition of several recipes from randomly selected bloggers and compare the sugar and fat content to a conventional chocolate bar[14] and a popular online cake recipe[15] to see whether they were healthy eating alternatives.

Methodology

Search Criterion:

Online diet analysis calculators were consulted to assess the nutrition content of a variety of recipes from online bloggers. The fat and sugar content were then compared to a popular, easily recognisable treat, a Mars® bar[14] and a popular online cake recipe.[15]

Four authors were chosen randomly from the Amazon[16] list of bestselling books (Search date 15/04/17). The search criteria used was Books : Food & Drink : Diets & Healthy Eating : Healthy Eating. The authors' names were searched on the Google database[17] to see if they had online blogs. All authors selected did. These blogs were then accessed to obtain recipes reported to be healthy eating alternatives. Five recipes were chosen at random from the dessert section of each of the blogs. The sugar and fat content were recorded for each recipe. The analysis of the nutritional composition involved calculating the fat and sugar contribution from each ingredient in the 20 recipes.

The methodology used to extract the data is illustrated in table 1 using 'pumpkin pie' from Blog A as an example.

Sugar Source	Coconut Sugar	Maple Syrup	Pumpkin Purée	
Amount of Ingredient	105g	120ml	500g	
Fat Source	Pecans	Coconut Oil	Flax Seed	Almond Milk
Amount of Ingredient	200g	2 tbsp= 28g	3 tbsp=31.5g	60ml
Excluded Ingredients	Psyllium Husk	Cinnamon	Oat Flour	

Table 1: Fat and sugar contribution of each individual ingredient from the 'Pumpkin Pie' recipe in Blog A

Ingredients whose principle macronutrient, defined for this analysis according to nutrition label guidelines[18] as containing <3% total nutrition of fat or <5% sugar were excluded. For example, brown flour (2.5% fat, 72% non-sugar carbohydrate, 4% carbohydrate and 13% protein) was excluded as the principle macronutrient was non-sugar carbohydrate.

Data Extraction and Manipulation

The various measurements were converted to grams to allow comparison. The average measurement values were accepted from database Nutritionix (Syndigo, Chicago, U.S) for example, one tablespoon of maple syrup was estimated at 20 grams and one tablespoon of coconut oil was estimated at 14 grams. For fruit, the given values for an average or medium fruit on the databases were accepted.

The following databases were initially reviewed to see if they could be used to calculate grams of sugar and fat present in each food item in the recipes:

- British Nutrition Foundation (BNF) (London, UK)
- Nutracheck (Dark Green Media, Wales, UK)
- Nutritionix (Syndigo, Chicago, U.S) (Database A)
- United States Department of Agriculture Branded Food Products Database (USDA) (Washington, D.C., U.S) (Database B)

These databases were consulted due to their popularity, reliability and accessibility. BNF and Nutracheck did not contain adequate data for a number of ingredients. The BNF only had 50% of the sugar sweeteners available and Nutracheck completely omitted sugar content. The

largest verified nutrition database, Nutritionix (Database A) and the United States Department of Agriculture Branded Food Products database (Database B) were therefore selected. Both had the required information regarding all ingredients used. From these databases, the amount of sugar/fat per 100 grams of the ingredient was recorded, and the content per 1g calculated. The results were then compared and checked for agreement and the mean of both database results was used as the final figure for analysis. Where an ingredient was only listed on a single database that information was used.

Based on the guidelines by the the SACN [7]and the World Health Organisation (WHO)[19], the sugars were classified as either being intrinsic or free sugars. Fats were classified as either saturated or unsaturated based on their primary fat composition[13] stated on database A. When ingredients analysed contained multiple forms of fat, the predominant type of fat was chosen for classification, for example; almonds 79% unsaturated fat, 21% saturated fat, classified as unsaturated. Where an ingredient contained both fat and sugar, the principle macronutrient took precedent unless the other ingredient was >5%. For example, cream cheese per 100g- 34g fat, 3.8g sugar, was classified as a 'fat source' ingredient.

Public polls in the UK have revealed a Mars® bar to be both the favourite[20] and 6th most sold[21] chocolate bar in the UK and hence a suitable popular treat to compare to the fat and sugar content of each recipe. A 51-gram Mars® bar[14] was used for analysis. The Google database[17] was consulted for the search criteria 'cake' and Mary Berry's lemon drizzle cake[15] was selected as the recipe with the most engagements from the top five results.

The total fat and sugar content of each recipe per serving size was calculated and plotted on a bar graph. The sugar content was plotted against the sugar content of a Mars® bar[14], the WHO recommended daily allowance for an average UK adult[19] and a serving of lemon drizzle cake.[15] The fat content of each recipe was plotted against that of a Mars® bar and a serving of the lemon drizzle cake.[15]

Results:

The Amazon website listed 16,180 books for the search criteria. The 4 randomly selected books appeared within the first 10 results and are listed in table 2.

Book	Author	Publisher & Date Published	Online Blog	Blog #
Deliciously Ella	Ella Woodward	Yellow Kite, 29.01.15	https://deliciouslyella.com/	A[22]
I Quit Sugar	Sarah Wilson	Bluebird, 02.01.14	https://iquitsugar.com/	B[23]
Get the Glow	Madeleine Shaw	Orion, 23.04.15	http://madeleineshaw.com/	C[24]
The Art of Eating Well	Jasmine Hemsley & Melissa Hemsley	Ebury Press, 19.06.14	http://www.hemsleyandhemsley.com/	D[25]

Table 2: Authors' books, publisher, date published and link to online blog

The four blogs and randomly chosen recipes are shown below in table 3 with their serving size.

Blog A Deliciously Ella	**Recipe 1**	**Recipe 2**	**Recipe 3**	**Recipe 4**	**Recipe 5**
	Pumpkin pie*	Halloween rocky road (12)	Orange brownies (12)	Beetroot brownies (16)	Pecan pie (15)
Blog B I Quit Sugar	**Recipe 6**	**Recipe 7**	**Recipe 8**	**Recipe 9**	**Recipe 10**
	Rosewater donut (12)	Gut-loving Easter egg (12)	Snickery caramel bars (20)	Rosey chocolate tart (16)	Upside-down sticky-plum pudding (16)
Blog C Madeline Shaw	**Recipe 11**	**Recipe 12**	**Recipe 13**	**Recipe 14**	**Recipe 15**
	Gluten-free blueberry muffin (12)	Healthy blondies (16)	Gluten-free cookies (6)	Gluten-free cranberry muffins (12)	Healthy chocolate cake*
Blog D Hemsley and Hemsley	**Recipe 16**	**Recipe 17**	**Recipe 18**	**Recipe 19**	**Recipe 20**
	Gingerbread Cupcakes (12)	Celebration cake (12)	Marzipan Easter bunnies (20)	Holiday spiced ginger biscuits (11)	Choc beet fudge cake (16)

Table 3: Blogs and the selected recipes with the listed serving size in brackets

**13.78 was calculated to be the average serving size and hence 14 was used as the serving size recipe 1 and 15 where no serving size was listed.*

The 20 recipes listed 62 ingredients overall. 15 ingredients (24.2%) were excluded from the analysis as they comprised <3% fat or <5% sugar content as shown in table 4.

Excluded Ingredient	Principle Macronutrient
All Spice	Fibre
Baking Soda	None
Brown Flour	Non Sugar Carbohydrate
Buckwheat Groats	Non Sugar Carbohydrate
Cinnamon	Non Sugar Carbohydrate
Gelatine	Protein
Ginger (Fresh)	None
Ginger (Ground)	Fibre
Lemon Peel	None
Nutmeg	Non Sugar Carbohydrate
Oat Flour	Non Sugar Carbohydrate
Psyllium Husk	Fibre
Rosewater	None
Salt	None
Vanilla Powder	None

Table 4: List of excluded ingredients from all recipes and their principle macronutrient

Fat Type	Fat Content per 1g Database A (g)	Fat Content per 1g Database B (g)	Mean Fat Content per 1g (g)	Saturated Fat (S) or Unsaturated Fat (U)
Cacao butter	1.00	1.00	1.00	S
Coconut oil	0.99	0.99	0.99	S
Butter	0.81	0.81	0.81	S
Pecans	0.72	0.72	0.72	U
Coconut cream	0.67	0.46	0.57	S
Almond butter	0.50	0.56	0.53	U
Almond flour	0.50	0.54	0.52	U
Almonds	0.53	0.50	0.51	U
Cashew butter	0.53	0.49	0.51	U
Peanut butter	0.50	0.50	0.50	U
Peanuts	0.49	0.49	0.49	U
Double cream	0.46	0.46	0.46	S
Cashews	0.46	0.44	0.45	U
Flax seed	0.42	0.42	0.42	U
Nutmeg	0.36	0.36	0.36	S
Cream cheese	0.34	0.34	0.34	S
Cacao powder	0.30	0.32	0.31	S

Chia seed	0.31	0.31	0.31	U
Desiccated coconut	0.28	0.26	0.27	S
Pumpkin seeds	0.19	0.19	0.19	U
Cloves	0.13	0.13	0.13	U
Eggs	0.10	0.10	0.10	U
Full fat milk	0.04	0.04	0.04	S

Table 5 – Analysis of fat content of ingredients from Database A+B for the 20 recipes

Sugar Type	Sugar Content per 1g Database A (g)	Sugar Content per 1g Database B (g)	Mean Sugar Content per 1g (g)	Free Sugar (F) or Intrinsic Sugar (I)
Coconut sugar	0.96	1.00	0.98	F
Honey	0.82	0.82	0.82	F
Molasses	0.75	0.75	0.75	F
Dried cranberry	0.73	0.73	0.73	I
Agave	0.68	0.68	0.68	F
Medjool dates	0.66	0.66	0.66	I
Dried mango	0.66	0.66	0.66	I
Date syrup	0.65	0.65	0.65	F
Maple syrup	0.60	0.60	0.60	F
Raisins	0.59	0.59	0.59	I
Brown rice syrup	0.53	N/A	0.53	F
Dried goji berry	0.46	0.46	0.46	I
Dark chocolate (70-85%)	0.24	0.25	0.25	F
Banana	0.14	0.12	0.13	I
Peppermint extract	0.13	N/A	0.13	F
Vanilla extract	0.13	0.13	0.13	F
Orange	0.12	0.09	0.11	I
Plums	0.10	0.10	0.10	I
Blueberries	0.10	0.10	0.10	I
Orange juice	0.08	0.09	0.09	F
Beetroot	0.08	0.07	0.07	I
Vanilla pod	0.06	N/A	0.06	I
Almond milk	0.03	0.07	0.05	I
Pumpkin purée	0.03	0.04	0.04	F

Table 6 – Analysis of sugar content of ingredients from Database A+B for the 20 recipes

The 20 recipes contained 24 different sugar sources and 23 sources of fat. 100% (24) of the sugar sources and 100% (23) of fat sources were available on Database A, whilst 87.5% (21) of sugar sources and 100% of fat sources (23) were available on Database B.

The data was then plotted (Figure 1), to compare the fat content per serving size to a traditional chocolate bar, a Mars® bar[14] and a popular online cake recipe.[15]

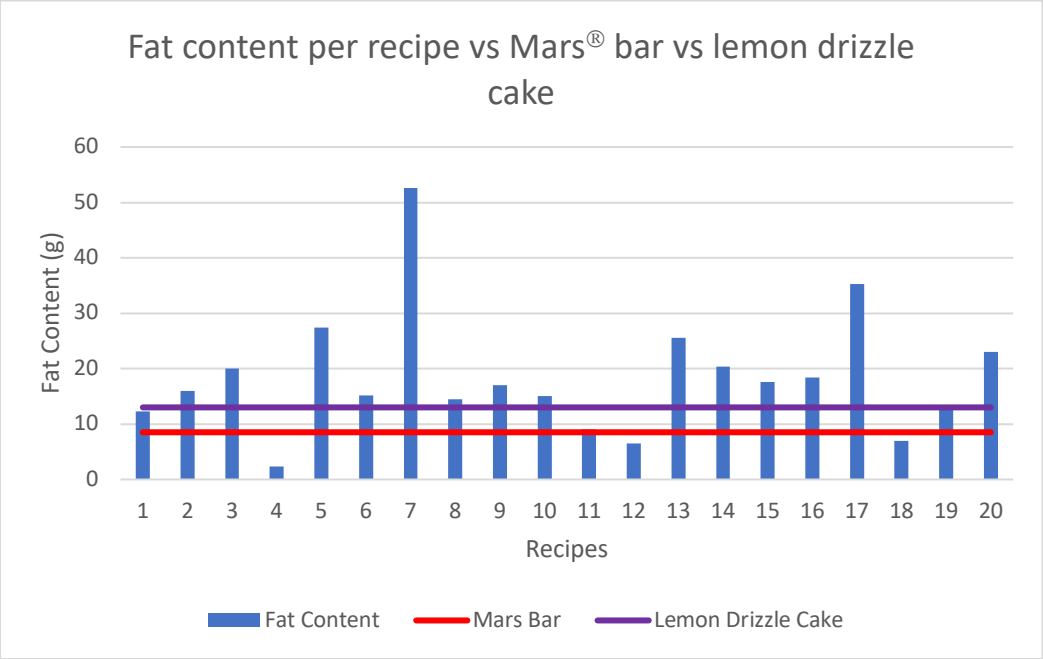

Figure 1: A comparison of the fat content per serving size of each recipe in relation to a Mars® bar and a serving of lemon drizzle cake

Overall 80% (16) of selected recipes (per serving size) were above the fat content (8.5g) of a Mars® Bar and all bloggers have recipes with fat content greater than a Mars® bar.[14] 70% of recipes (14) were above the fat content of a serving of lemon drizzle cake.[15]

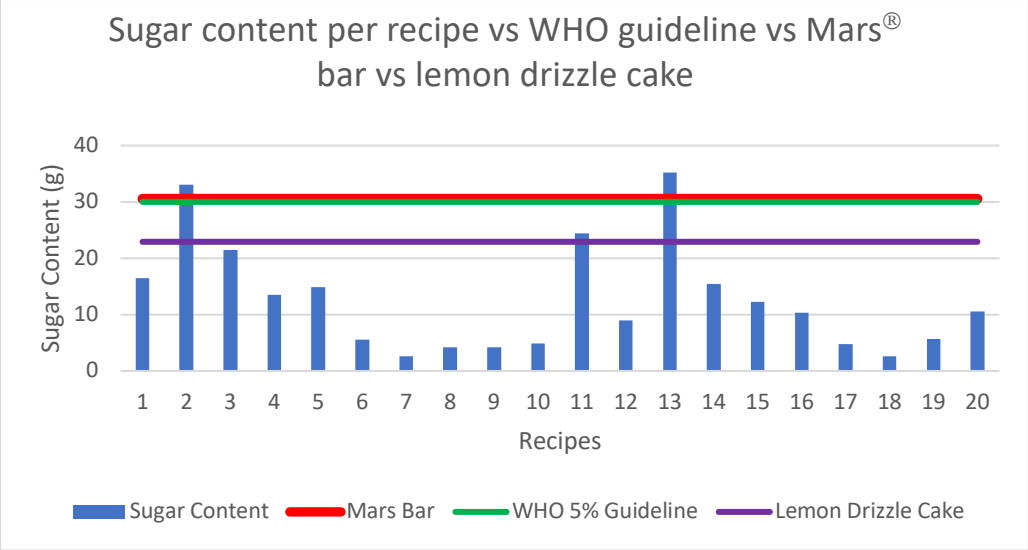

Figure 2: A comparison of the sugar content per serving size of each recipe in relation to the WHO guideline, a Mars® bar and a serving size of lemon drizzle cake

Figure 2 illustrates the comparison of the free sugar content per serving size of each recipe to the WHO guideline of no more 5% of total dietary intake[19], which for an average UK adult can be estimated at 30 grams per day.[7] A further comparison is made to the sugar content of a Mars® bar[14] and a serving of lemon drizzle cake.[15] 10% (2) of the recipes had sugar contents higher than that of a Mars® Bar and the WHO 5% guideline whilst 15% (3) had a sugar content higher than a serving of lemon drizzle cake. Of note is the average serving size per recipe of 14 in comparison to the serving size of 6 for the lemon drizzle cake.

Discussion:

Health Eating- What is it?

Healthy eating has hit the mainstream.[26] The definition of healthy eating has evolved multiple times and it is unsurprising that there is confusion surrounding what healthy eating means. A healthy diet is considered one that ensures we obtain the wide variety of nutrients our bodies need to thrive whilst maintaining an energy balance.[27]

Current healthy eating guidelines indicate sugar and saturated fat intakes should be reduced to improve health.[28] Sugar is currently the main focus of the media and the food industry[26] have responded to this by producing nutritive sugar sweeteners such as agave syrup and

coconut sugar which are cleverly marketed to consumers as healthy 'refined-sugar free alternatives.' This analysis revealed that coconut sugar contained 98 grams of sugar per 100g whilst agave had 68g of sugar per 100g. These products will therefore contribute to current health problems such as type 2 diabetes, cardiovascular disease, obesity and dental caries [7] and should be clearly identifiable as high sugar products which have the same health risks as other sugars. There is currently no clear government guidance surrounding these new products, and specific guidance would be useful. The SACN[7] mentioned syrups in their report, but specific mention of new nutritive sugar substitutes would be helpful.

A trend found in this analysis was a high fat content in the recipes chosen. Overall 80% of the recipes analysed in this review contained more fat than a Mars® bar which itself contains 30% of the saturated fat allowance for an average UK adult.

Obesity and Dental Caries

An increased consumption of free sugars results in an increased risk of obesity and dental caries.[7] Obesity, defined as an excess of adipose tissue[28] is a worldwide crisis,[29] associated with an increased risk of coronary heart disease, type 2 diabetes, gallbladder disease and osteoarthritis.[28,29] Almost 25% of the UK are currently obese[28] and obesity is estimated to cost the NHS £6.1 billion a year.[28] There is a concurrency between socioeconomic status and level of obesity, with the most affluent areas reporting a lower incidence of obesity.[28] One of the government's strategies for reducing obesity, was to encourage restaurants to put calorie information on menus, so that the public were aware of the calories that they were consuming.[30] In contrast, of the four bloggers analysed, none provided any information regarding the calorie content, and it would be pragmatic for the regulation to be extended to include online food blogs and recipe books and a further benefit would surely follow the inclusion of sugar and fat content. Whether the viscosity of some of these nutritive sugar sweeteners results in a higher detriment to dental health is outside of the scope of this study but is an area in which further research would be useful.

Evidence-Based Practice and its Importance

Evidence based practice (EBP) is the amalgamation of systematic research with expert opinion to ensure that the highest possible clinical care is being implemented.[31] None of the

bloggers reviewed referenced any of their sources for the advice on their websites, nor recommended any sources or guidelines.[22-25]

Blog D [25] inform their followers on their website that they have no qualifications in nutrition or dietetics. They reassure their followers the information they provide on their blog 'has been developed following years of research, personal studies, case studies and our experience with nutrition'. However, of the recipes analysed from their website for this review, all contained more fat per serving size than both a Mars® bar[14] and the lemon drizzle cake[15] analysed. The recipes reviewed were in some cases lower in sugar but are not healthy alternatives. The lack of regulation for online platforms enables authors to avoid identifying the detailed dietary breakdown of their recipes.

From low-fat food trends of the 1980's and 90's to low carb trends of the 21st century, the media has constantly been victimising one particular food group, leaving a trail of confusion behind. The low-fat trend initiated by government guidelines in America in 1977 and the UK in 1983 without sufficient evidence from randomised control trials[32], resulted in almost thirty years of public policy advice that had no merit and it has been postulated that they should not have been introduced.[32] This highlights the potential consequences of dietary advice being issued without thorough scientific research that supports said advice.

Public Health England have estimated that if sugar consumption was to reduce to the SACN[7] and WHO[11] daily guideline of no more than 5% of total dietary intake (30 grams for average active UK adult), the incidence of tooth decay would decrease by approx. 200,000 cases per year.[33] Encouraging people not to monitor their intake of 'healthy and nourishing'[22] cariogenic free-sugar foods such as agave syrup and smoothies is spreading a false message that may be detrimental to public health.

<u>Difficulties Finding Certain Ingredients</u>

There is difficulty in accessing information relating to these new nutritive sugar sweeteners. The BNF only had 50% of the sugar sweeteners available and Nutracheck completely omitted sugar content. Information regarding brown rice syrup, peppermint extract and vanilla pod was available on only 1 of the 4 databases consulted. This difficulty in accessing nutritional information could hinder patient's comprehension of nutritive sugar sweeteners and may

lead to a misconception that they are healthy, faultless, sugar-free alternatives to refined sugar.

Social Media as a Healthcare Platform

It has been reported[34] that health information disseminated online, is done so with no prejudice to race, education or healthcare access. Online healthcare advice could therefore overcome several barriers to the public receiving dietary advice and help to eliminate the inequality in standards of healthcare received based on socioeconomic status.[39] It is important that the information provided is succinct to prevent overwhelming patients with information and evidence-based to ensure the advice given is based on thorough scientific research.[34]

Health bloggers provide an invaluable platform to disseminate public health messages to the general public. The challenge is for government and health organisations to utilise this platform to promote alternative healthy eating options that align to current national and international guidance.

Serving Size:

The average serving size of the recipes analysed was 14 whereas the lemon drizzle cake analysed had a serving size of 6. The only recipe analysed from the blogs that had a serving size of 6 was recipe 13 from Blog C.[24] Recipe 13 in turn had the highest sugar content and 4th highest fat content of all recipes analysed. It contained more sugar than the WHO 5% guideline,[11] and had a higher sugar and fat content than both a Mars® bar[14] and lemon drizzle cake.[15] It can be suggested that the sugar and fat content of the recipes analysed are distorted due to their small portion size and are higher in sugar and fat than they may appear to consumers.

Conclusion:

The advice that the healthcare bloggers reviewed is not evidence based, and of the recipes analysed the fat content seemed to be increased to make up for the reduced sugar content, resulting in an unbalanced recipe. The serving sizes presented also appeared to be disproportionately small when compared to a popular online cake recipe serving size. Rather

than criticising these bloggers, it would be pragmatic to encourage them to follow the guidelines applied to restaurants enabling their millions of followers to accurately assess the dietary impact of their recipes. It would perhaps be useful for organisations like Public Health England and the British Nutrition Foundation to collaborate with these influential members of the public who have an invaluable platform where information is disseminated with no prejudice to race or socio-economic status.

As healthcare providers it is important for us to be aware of where our patients are sourcing their healthcare information. A knowledge of popular 'healthy' social media bloggers may provide a useful insight into our patient's lifestyles and enable us to provide specific advice, tailored to that patient. Awareness of the health consequences of these new nutritive sweeteners needs to be publicised by all involved in healthcare provision. We must ensure that we are constantly updating our healthcare and dietary advice to reflect the norms of the society that we are living in today. Only then can we truly empower and enable our patients to take responsibility for their health.

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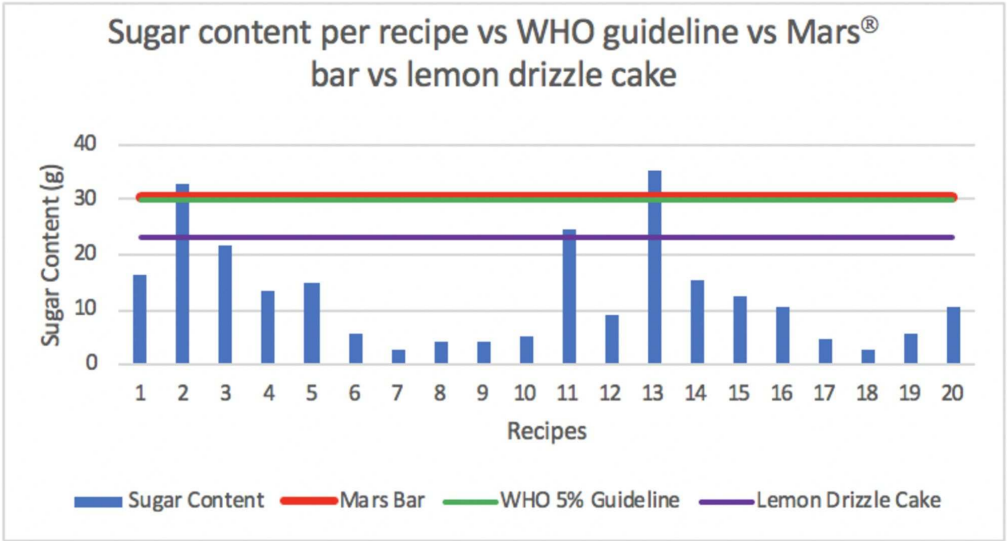
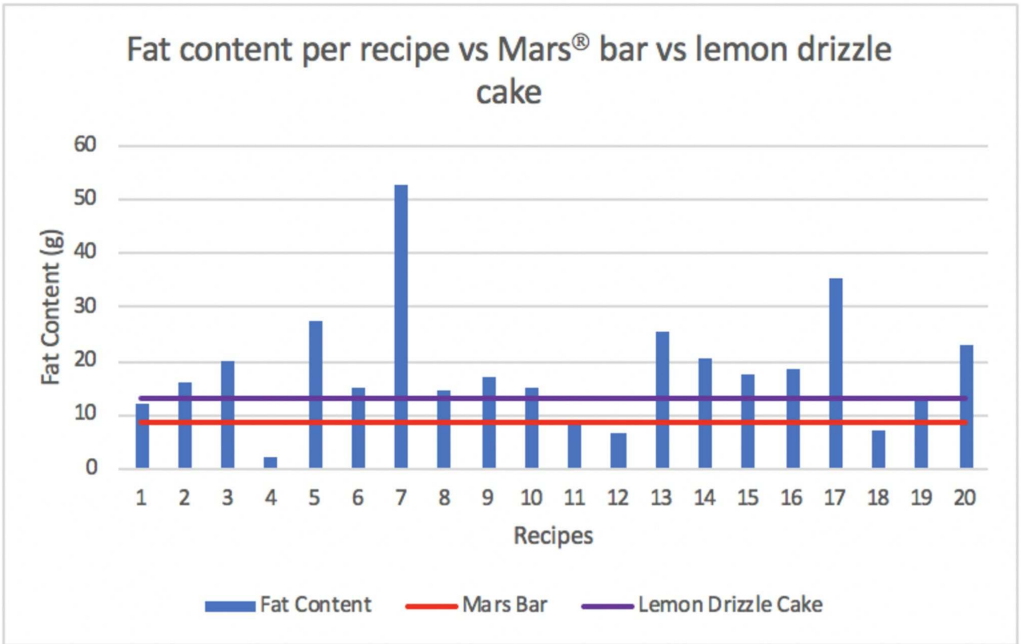

Sugar content per recipe vs WHO guideline vs Mars® bar vs lemon drizzle cake
Sugar Content (g)
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Recipes
Sugar Content
Mars Bar
WHO 5% Guideline
Lemon Drizzle Cake


Fat content per recipe vs Mars® bar vs lemon drizzle cake
60
50
40
30
20
10
0
Fat Content (g)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Recipes
Fat Content
Mars Bar
Lemon Drizzle Cake

Sugar Source	Coconut Sugar	Maple Syrup	Pumpkin Purée	
Amount of Ingredient	105g	120ml	500g	
Fat Source	Pecans	Coconut Oil	Flax Seed	Almond Milk
Amount of Ingredient	200g	2 tbsp= 28g	3 tbsp=31.5g	60ml
Excluded Ingredients	Psyllium Husk	Cinnamon	Oat Flour	

Book	Author	Publisher & Date Published	Online Blog	Blog #
Deliciously Ella	Ella Woodward	Yellow Kite, 29.01.15	https://deliciouslyella.com/	A[22]
I Quit Sugar	Sarah Wilson	Bluebird, 02.01.14	https://iquitsugar.com/	B[23]
Get the Glow	Madeleine Shaw	Orion, 23.04.15	http://madeleineshaw.com/	C[24]
The Art of Eating Well	Jasmine Hemsley & Melissa Hemsley	Ebury Press, 19.06.14	http://www.hemsleyandhemsley.com/	D[25]

Blog A Deliciously Ella	**Recipe 1**	**Recipe 2**	**Recipe 3**	**Recipe 4**	**Recipe 5**
	Pumpkin pie*	Halloween rocky road (12)	Orange brownies (12)	Beetroot brownies (16)	Pecan pie (15)
Blog B I Quit Sugar	**Recipe 6**	**Recipe 7**	**Recipe 8**	**Recipe 9**	**Recipe 10**
	Rosewater donut (12)	Gut-loving Easter egg (12)	Snickery caramel bars (20)	Rosey chocolate tart (16)	Upside-down sticky-plum pudding (16)
Blog C Madeline Shaw	**Recipe 11**	**Recipe 12**	**Recipe 13**	**Recipe 14**	**Recipe 15**
	Gluten-free blueberry muffin (12)	Healthy blondies (16)	Gluten-free cookies (6)	Gluten-free cranberry muffins (12)	Healthy chocolate cake*
Blog D Hemsley and Hemsley	**Recipe 16**	**Recipe 17**	**Recipe 18**	**Recipe 19**	**Recipe 20**
	Gingerbread Cupcakes (12)	Celebration cake (12)	Marzipan Easter bunnies (20)	Holiday spiced ginger biscuits (11)	Choc beet fudge cake (16)

Excluded Ingredient	Principle Macronutrient
All Spice	Fibre
Baking Soda	None
Brown Flour	Non Sugar Carbohydrate
Buckwheat Groats	Non Sugar Carbohydrate
Cinnamon	Non Sugar Carbohydrate
Gelatine	Protein
Ginger (Fresh)	None
Ginger (Ground)	Fibre
Lemon Peel	None
Nutmeg	Non Sugar Carbohydrate
Oat Flour	Non Sugar Carbohydrate
Psyllium Husk	Fibre
Rosewater	None
Salt	None
Vanilla Powder	None

Fat Type	Fat Content per 1g Database A (g)	Fat Content per 1g Database B (g)	Mean Fat Content per 1g (g)	Saturated Fat (S) or Unsaturated Fat (U)
Cacao butter	1.00	1.00	1.00	S
Coconut oil	0.99	0.99	0.99	S
Butter	0.81	0.81	0.81	S
Pecans	0.72	0.72	0.72	U
Coconut cream	0.67	0.46	0.57	S
Almond butter	0.50	0.56	0.53	U
Almond flour	0.50	0.54	0.52	U
Almonds	0.53	0.50	0.51	U
Cashew butter	0.53	0.49	0.51	U
Peanut butter	0.50	0.50	0.50	U
Peanuts	0.49	0.49	0.49	U
Double cream	0.46	0.46	0.46	S
Cashews	0.46	0.44	0.45	U
Flax seed	0.42	0.42	0.42	U
Nutmeg	0.36	0.36	0.36	S
Cream cheese	0.34	0.34	0.34	S
Cacao powder	0.30	0.32	0.31	S
Chia seed	0.31	0.31	0.31	U
Desiccated coconut	0.28	0.26	0.27	S
Pumpkin seeds	0.19	0.19	0.19	U
Cloves	0.13	0.13	0.13	U
Eggs	0.10	0.10	0.10	U
Full fat milk	0.04	0.04	0.04	S

Sugar Type	Sugar Content per 1g Database A (g)	Sugar Content per 1g Database B (g)	Mean Sugar Content per 1g (g)	Free Sugar (F) or Intrinsic Sugar (I)
Coconut sugar	0.96	1.00	0.98	F
Honey	0.82	0.82	0.82	F
Molasses	0.75	0.75	0.75	F
Dried cranberry	0.73	0.73	0.73	I
Agave	0.68	0.68	0.68	F
Medjool dates	0.66	0.66	0.66	I
Dried mango	0.66	0.66	0.66	I
Date syrup	0.65	0.65	0.65	F
Maple syrup	0.60	0.60	0.60	F
Raisins	0.59	0.59	0.59	I
Brown rice syrup	0.53	N/A	0.53	F
Dried goji berry	0.46	0.46	0.46	I
Dark chocolate (70-85%)	0.24	0.25	0.25	F
Banana	0.14	0.12	0.13	I
Peppermint extract	0.13	N/A	0.13	F
Vanilla extract	0.13	0.13	0.13	F
Orange	0.12	0.09	0.11	I
Plums	0.10	0.10	0.10	I
Blueberries	0.10	0.10	0.10	I
Orange juice	0.08	0.09	0.09	F
Beetroot	0.08	0.07	0.07	I
Vanilla pod	0.06	N/A	0.06	I
Almond milk	0.03	0.07	0.05	I
Pumpkin purée	0.03	0.04	0.04	F